



STORMWATER TECHNOLOGIES SHOWCASE INSIDE

Stormwater Treatment Technologies

The 1994 National Water Quality Inventory Report, prepared by EPA and recently submitted to Congress, indicates that while most of our Nation's waters are of good quality, about 40 percent of the surveyed rivers, lakes, and estuaries are too polluted for basic uses, such as fishing and swimming. Urban runoff and storm sewers were found to be the largest contributors of pollutants to surveyed estuarine waters and the third leading source of pollutants to rivers and lakes. Despite the remarkable accomplishments of the past two decades in both cleaning and protecting our nation's water, significant problems remain. The innovative stormwater treatment technologies spotlighted in this Technovation can help address these problems.

Featured products came to our attention at a trade show held last fall in Ipswich, MA. The show was sponsored

by the U.S. Natural Resources Conservation Service (NRCS), the Massachusetts Office of Coastal Zone Management, Massachusetts Audubon: North Shore Conservation Advocacy, and the Eight Towns and the Bay Committee of the Massachusetts Bays Program. This collaboration of federal, state, and private nonprofit agencies teamed up to assist local communities with their water quality and resource protection concerns. The objective was to give the latest information on available and affordable technologies to local planners, engineers, and town officials in order to help people involved with stormwater management meet their water quality protection goals.

Information on these stormwater technologies is timely. Regulations in many communities now require that post-development runoff rates and water *(continued on page 8)*

Planning For That Rainy Day

Although treatment technologies are being featured in this bulletin, we would be remiss if we did not remind folks that even the best treatment technologies are no substitute for good land use planning, which should always precede decisions on stormwater treatment options.

Municipal officials looking for assistance on this issue can contact educators at the

University of Connecticut Cooperative Extension System who have developed a project called Nonpoint Education for Municipal Officials (NEMO).

NEMO is based on the conviction that reduction of polluted runoff can be achieved only through informed land use decisions at the local level. NEMO is one of the few programs *(cont. on page 7)*

About CEIT

Now in our third year, EPA's Center for Environmental Industry and Technology (CEIT) is moving forward with our mission to promote New England's environmental technologies. CEIT continues to act as a point of contact for the environmental industry, technology developers, investors and other interested stakeholders, providing an ombudsman service for those seeking assistance on the development of new technologies.

A sampling of our work includes: sponsoring workshops on topics ranging from technology transfer and verification to international marketing; providing clients with information on grant opportunities, use of federal laboratories, and access to potential demonstration sites; sponsoring environmental venture capital forums; and participating in a White House initiative to develop a national environmental technology strategy.

Our work last year on developing and implementing an Interstate Regulatory Cooperation Project, an innovative federal/state partnership designed to promote the acceptance of innovative environmental technologies in New England and improve *(continued on page 7)*

Nonpoint Source News to Note

Nonpoint Source NEWS-NOTES is an occasional bulletin, produced by the Terrene Institute under an EPA Cooperative Agreement, dealing with the condition of the water-related environment, the control of nonpoint sources of water pollution, and the management and restoration of watersheds.

To add your name to the mailing list and receive NEWS-NOTES free of charge, fax your name, address, and organizational affiliation to (202) 260-1517 or (703) 548-6299. If you're on the net, you can access NEWS-NOTES on the NPS Information Exchange on EPA's World Wide Web Site: <http://www.epa.gov/OWOW/NPS/npsie.html>

Stormwater Technologies Showcase*

Downstream Defender™

The **Downstream Defender™**, manufactured by HIL Technology, is a treatment device designed to capture settleable solids, floatables, oils, and grease from stormwater runoff. More versatile than conventional stormwater treatment systems, this device requires a fraction of the land area required by storage tanks and detention ponds. Standard sizes are available, each designed to treat a predetermined design flow to a predetermined solids removal efficiency.

The **Downstream Defender™** consists of a concrete cylindrical vessel with a Sloping base and internal components. Raw liquid is introduced tangentially into the side of the cylinder and spirals down the perimeter, allowing heavier particles to settle out by gravity and the drag forces on the wall and base of the vessel.

The base of the device is formed at a 30 degree angle. As the flow rotates about the vertical axis, solids are directed toward the center and base of the vessel, where they are stored in the collection facility. The internal components direct the main flow away from the perimeter and back up the middle of the vessel as a narrower spiraling column rotates at a slower velocity than the outer downward flow.

A dip plate is suspended from the underside of a component support frame, serving two purposes: 1) it locates the shear zone - the interface between the

outer downward circulation and the inner upward circulation where a marked difference in velocity encourages solids separation, and 2) it establishes a zone between it and the outer wall for the capture of floatables, oil, and grease.

Specifications vary with desired removal efficiency for a specified design flow. Typical design criteria would be 90% removal of all inorganic particles greater than 150 microns with a specific gravity of 2.65 at design flow.

The product is suitable for stormwater treatment applications ranging from wet weather discharge, to new developments and construction sites, streets and roadways, parking lots, vehicle maintenance washdown yards, and wetlands protection. It may also be used at industrial and commercial facilities, and as a pretreatment device in advance of retention basins.

The **Downstream Defender™** has no moving parts and requires no external power source. With diameters as small as 4 feet, the units require a minimum of land area. It is delivered to the site fully manufactured, subject to size and packaging considerations, and needs only to be directly connected to the storm sewer system. A simple sump vac procedure is required periodically to remove floatables and solids from the collection facility. The frequency of the cleanout is determined in the field after installation.

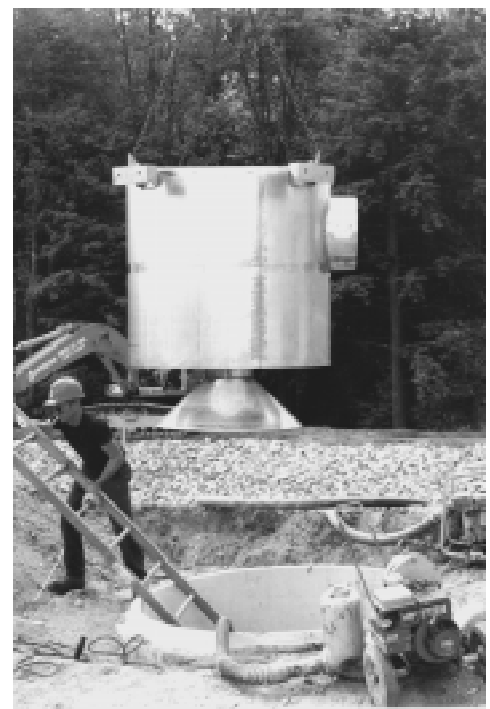
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6 ft. *Downstream Defender™*
Saco Post Office Distribution Center,
Saco, Maine



Stormceptor®

The **Stormceptor®** is a precast modular structure that can be installed on existing and new storm drain systems to remove a high percentage of oil, sediment, and other urban pollutants from stormwater runoff. **Stormceptor®** can be used as a primary water quality device, a pretreatment device, a spill control device, a coastal zone management device, or as an NPDES stormwater device. Its unique design prevents the resuspending of previously collected pollutants, even during peak stormwater flow periods. Since it will not flush out previously

collected materials during peak flow periods, **Stormceptor®** can also be used to monitor site conditions.

Stormceptor® units are available in a choice of materials depending on site conditions. Fiberglass units are designed for emplacements where there are site restrictions that make the precast concrete unit impractical. Precast concrete units are manufactured from concrete components that are pre-engineered for traffic loading. Installation is simple and rapid (typically taking from several hours to a day) since the device is assembled from precast

modular components.

Stormceptor® is best suited for drainage areas under 10 acres where performance-based water quality control is desired. The small size, vertical orientation, and ease of installation render it a suitable for retrofit projects in urban areas. It can be installed in residential subdivisions, commercial parking lots, industrial sites, fuel tank farms, service stations, restaurant parking lots, and on road and highway margins. Dimensions of the systems vary depending on model type. The device does not require any pretreat

ment, and, in fact, can be used as a pretreatment device for ponds, wetlands, sand filters and infiltration systems. **Stormceptor®** treats the first flush of all storms and approximately 85 to 90 percent of the annual flow volume. Due to its internal bypass, **Stormceptor®** can match the stormwater volume of its inlet and outlet pipes without scouring. The treated flow rate varies with unit size and ranges from 0.64 to 2.47 cfs. Large scouring flows

are diverted by an internal diversion structure, which avoids scouring of the storage chamber.

It is recommended that material in the storage section be pumped annually by a vacuum truck, although monitoring may indicate that the unit needs less frequent service. The absence of filtering media (filters, sand, gravel, etc.) reduces the difficulty of maintenance. Because the units are below grade, there is no need for mosquito

control as there would be with wet or dry ponds. Local Installations can be found in MA, CT, and NH.

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CSR New England Pipe
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Vortex Sampler

The **Vortex** Company has produced an automated stormwater sampler that starts and stops mechanically, without electrical hookups. The **Vortex Sampler** is designed to accommodate two primary applications: 1) surface runoff collection via grab samples and composite samples (0.8 and 5.5 gallon capacities), and 2) in-line (in-the-pipe) collection via grab samples (0.8 gallon capacity). According to the manufacturer, the **Vortex Sampler** meets US EPA protocol for grab and composite sampling.

The surface sampler is positioned below grade in the runoff path to interrupt sheet flow and collect a representative sample. In many applications, it can be suspended in the drop box beneath an existing grate, or placed in its own housing (installation time is typically 1 to 2 hours). It is placed there at a time convenient to the installer at some point before the storm event to be sampled. When runoff reaches the **Vortex Sampler**, it floats the upper ball valve and activates sample collection. As the sampler fills, air is forced out of the collection chamber and the lower ball valve floats into

closed position and shuts off the system. This method provides a first flush grab sample. When the 5.5 gallon sampler is used a continuous flow composite sample can be obtained for a time period of up to 7 hours.

The in-pipe sampler is positioned inside a pipe or outfall where a representative sample can be collected. An expanding band is placed in the pipe and secured in place by means of a turnbuckle. The sampler is attached to this expanding band, and when storm flow produces a minimum of 4.25 inches inside the pipe, the upper ball valve floats to open this system. The 4.25 inch depth allows any base flow (typically not stormwater) to bypass the sample collector. As the sampler fills, the lower ball valve floats until it seals in the closed position.

With either system, the **Vortex Sampler** is removed from its housing or expanding band holder at a safe time and the water sample transferred to laboratory bottle(s) by attaching clean tubing (tygon or Teflon) to the barbed outlet of the center port valve and making the transfer. This tubing prevents aeration of the sample.

The **Vortex Sampler** can be used for sample collection on both paved and unpaved surfaces, in stream beds, and in pipes. If oil and grease samples are required, the manufacturer recommends using the Teflon-lined sampler in order to facilitate proper laboratory analysis.

Vortex Samplers are constructed of stainless steel (304 and 316L) and will provide long-term service if properly cleaned and maintained. They require no maintenance beyond general cleaning, which consists of disassembling the sampler, soaking it in hot water with non-phosphate detergent, mechanical scrubbing, rinsing with deionized water, and reassembly.

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CSF® Stormwater Treatment System

The **CSF®** Stormwater Treatment system filters stormwater runoff using a series of radial flow filter cartridges containing media derived from leaf compost. The media removes sediments, soluble metals, oil, and grease from stormwater through mechanical filtration, cation exchange, and adsorption. The filter cartridges are connected to a pipe under drain system which is cast into the body of a precast concrete vault or larger cast-

in-place structure. The design configurations have options of traffic bearing lids, catch basin replacement or large underground or open facilities.

The **CSF®** has been used in varied applications, including fast food restaurants, shopping malls, medical facilities, waste transfer stations, light industrial and residential developments, arterial roads and freeways, and regional water quality treatment facilities.

The **CSF®** is designed to be part of a stormwater management plan. System design must include an evaluation of

pretreatment requirements, land use, bypassing, upstream management practices including sweeping and catch basin cleaning. Each cartridge handles a design flow of 15 (gpm). A total hydraulic drop of 2.3 feet is needed across the unit. Detailed design guidelines, drawings and specifications, and O&M guidelines are available from the manufacturer.

The system should be maintained annually to function effectively. Each site will develop a history of maintenance needs, however, which can vary from

year to year, and in some cases more frequent maintenance may be required. Typical maintenance activities include sediment removal, backwashing, or recharging the cartridges with fresh media. The Stormwater Management company tracks maintenance of all systems and offers service agreements. The company also provides maintenance verification to regulatory agencies for units they maintain.

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Maximizer™ Chamber System

The **Maximizer™ Chamber System** is an innovative stormwater treatment device that can be used in place of ponds, large diameter pipe and stone, vaults, and dry wells. The system is an effective retention device, providing a large infiltrative surface for groundwater recharge and stormwater renovation, and also serves as an effective detention system that puts required storage underground. In addition, the system eliminates the health and safety concerns associated with storage ponds.

The system is engineered with high-density polyethylene and utilizes unique, domed PowerArch™ bridges between each row of chamber units to enhance available volume for water storage and to add strength. These bridges integrate the chamber rows into a single, continuous storage reservoir providing nearly 100 percent void volume. The system is designed to withstand loads of 32,000 lbs/axle with appropriate compacted cover, exceeding the AASHTO H-20 load rating.

The lightweight **Maximizer™** units can be installed without a crane, and all components slide together easily and interlock securely. The modular chamber units and PowerArch™ bridges can interlock to form subsurface beds of many different configurations. Maximizers need a suitably structural sand base and 18-48" of properly compacted backfill for installation.

The system is appropriate for varied applications, including commercial and industrial sites, residential developments, and recreation areas. It can be installed in parking lots and under

playing fields or other recreation areas. Once installed, the **Maximizer™ System** is virtually invisible.

Some pretreatment is required and varies depending on site conditions. **Maximizer™** units are low-maintenance, requiring only periodic cleanout and are resistant or inert to all chemicals found in stormwater. Local installations can be found both in Massachusetts and Connecticut.

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StormTreat System™

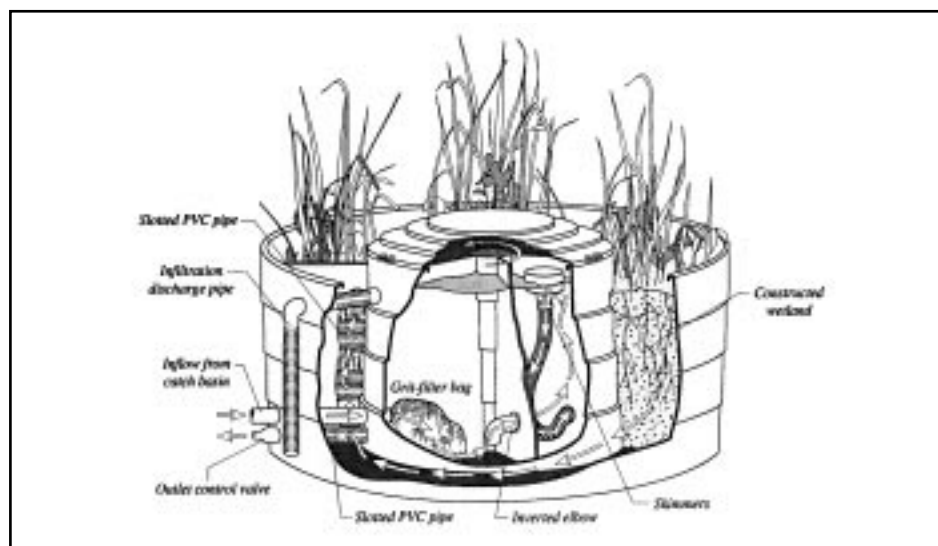
The **StormTreat System™** is a stormwater treatment technology that provides high levels of treatment for a broad range of pollutants. The system consists of a series of sedimentation chambers (filtered with skimmers) and a constructed wetlands contained within a modular 9.5-foot diameter recycled polyethylene tank that connects directly to existing drainage structures.

In a recent evaluation of the system's removal efficiency, a water quality monitoring program was developed and implemented by the Jones River Watershed Association. Members were responsible for taking samples that were analyzed by independent state-certified laboratories. Results indicated an average removal rate of 94 percent of the total coliform bacteria, 97 percent of fecal coliform bacteria, 99 percent of total suspended solids (TSS) and 90 percent of total petroleum hydrocarbons.

Preliminary nutrient results suggest a removal rate of 77 percent for total dissolved nitrogen (TDN) and 90 percent total phosphorus. The nitrogen removal rate is expected to improve during the growing season when wetland plants are more active. Removal rates for metals are: lead/77 percent, chromium/98 percent, and zinc/90 percent.

A trend of increasing removal rates over time is evident for total nitrogen and total phosphorus. This is likely the result of vegetated wetland maturation and the associated microorganism population in its root zone.

*The **StormTreat System™** consists of a series of sedimentation chambers and a constructed wetlands contained within a modular 9.5-foot diameter recycled polyethylene tank.*



According to the manufacturer, the **StormTreat System™** requires minimal maintenance. Annual inspection is recommended to ensure that the system is operating effectively. Sediment should be removed from the system via suction pump once every 3-5 years, depending on local soil characteristics and catch basin maintenance practices.

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Vortechs™

The **Vortechs™ Stormwater Treatment System** is designed to treat runoff from urban areas or from any site with an impervious surface that threatens to drain pollutants into watersheds and other ecologically sensitive areas. **Vortechs™ Systems** have been designed for a variety of residential, industrial, commercial, and municipal applications, including parking lots, airport runways, roadways, vehicle maintenance areas, gas stations, outdoor material storage areas, etc.

The product is made from precast Portland cement mixture and works as follows. A tangential inlet to the trap's circular grit chamber to channel stormwater into a vortex-like flow path. This swirling action directs sediment into the center of the chamber, where it accumulates in a stable pile. Oily contaminants floating in the grit chamber are then trapped by a sealed oil barrier. As the storm intensifies, the inlet becomes submerged and influent is prevented from disturbing previously captured floatables.

Eight models of the **Vortechs™ System** are available, with treatment capacities ranging from 3 to 25 cfs. Pollutants removed are hydrocarbon-saturated sediments, sands, silts, oily floatable liquids, salts, heavy metals, and other floatable and settleable debris.

The **Vortechs™ System** is installed below-grade, which minimizes land consumption, and installs in just a few

hours. The excavation is leveled and lined with gravel or other granular material, then the **Vortechs™ System** housing and its components are lowered into place. Joints are then sealed, inlet and outlet piping are set in place, a cover is placed over the system and sealed, and the excavation is filled. Since each system is custom-engineered, outlet configurations can be modified to suit site conditions.

Pretreatment of runoff before it enters the system is not necessary in most cases. Cleaning is performed with a vacuum truck by removing just one manhole cover. The cost of maintenance when compared to conventional oil and grit separators is reduced by 50 to 70 percent because the system decants water at a controlled rate after a heavy storm, leaving up to 80 percent less water than in conventional oil and grit separators.

Typically a newly-installed system is monitored approximately once per month until pollutant accumulation rates are established, then the system may be pumped out one to three times per year,

depending on weather and site activity. It is recommended in New England installations that the maintenance schedule includes cleanout prior to the winter sanding/salting season.

With regular maintenance the **Vortechs™ System** is designed to provide efficient stormwater treatment indefinitely. No moving parts, filters, bags, or other components ever need be replaced. Numerous installations can be found throughout Massachusetts and Connecticut. A complete installation list is available from Vortechtechnics.

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Vortechs™ - Pollution Control Project - Seabrook, New Hampshire



StreamGuard™ Catch Basin Inserts

The **StreamGuard™** Catch Basin Insert provides water quality treatment through filtration, settling, or absorption when installed under a storm drain grate. Stormwater entering the catch basin is forced into the **StreamGuard™** insert. The fabric first acts as a filter, allowing water to pass but retaining sediment, and

absorbing oil and grease.

When the fabric can no longer filter due to accumulated contaminants, it begins to operate in its designed long-term mode. In this mode, the body of the oil and sediment unit fills with water, providing detention for the gravity settling of sediment which is captured in the bottom of the unit. Oil entering the unit will conversely remain floating at the surface, where it is absorbed by the built-in oil sorbent filter pack.

Available in three models (Oil & Grease, Sediment Only, and Trash & Debris) the inserts are best suited for parking lots, construction sites, industrial sites, marinas, stadiums, shipyards, commercial waterfronts, and vehicle washing facilities. **StreamGuard™** fit universally because of their unique adaptor skirt.

Maintenance is quick and inexpen-

sive, with replacement frequency dependent on contaminant loading and sediment load volume. In many storm drain applications with drainage areas of less than 10,000 square feet, the inserts will last up to 5 inches of rain or longer. It is recommended that catch basins be inspected and observations logged as a best management practice.

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Fossil Filter™

Fossil Filter™ is a contaminant-absorbing trough apparatus which incorporates EPA-approved adsorbents installed in water drainage inlets to collect hydrocarbons and other contaminants while permitting the undisturbed passage of water. It functions as a water purifying system at the point of entry on urban storm drain systems, filtering storm drain runoff during initial and low flows, when the bulk of contaminants enter the inlet. As the water enters the installed drainage inlet, it falls into the **Fossil Filter™** and flows through a replaceable filter pack which removes over 99 percent of the petroleum-based contaminants.

Fossil Filter™ standard components for square or rectangular inlets are fabricated with galvanized steel for use in normal parking lot applications. For areas where silt and debris are a problem, the product is fabricated to fit standard inlets of petroleum resistant fiberglass for square or round inlets and includes an area to retain the silt and debris to avoid stopping up the drainage system. The adsorbent filter medium con-

sists of "amorphous aluminum silicate," an inert blend of minerals that contain no reactive chemicals and are biodegradable. The filter is manufactured to fit site conditions and is available for both flat-grated and curb-opening inlet configurations.

The only installation requirements are a storm grate, curb grate, or flared end on a culvert pipe. Typically, drop-in units and silt basin units can be installed in less than an hour; curb inlet units will take approximately 45 minutes when a dual stage filter is installed.

Fossil Filters™ can be used for control of urban and parking lot runoff. No pretreatment is required. Tests by an independent engineering firm showed that a typical curb inlet did not impede maximum design flow of inlets, and effectively filtered up to 80 gpm. Units installed in flat-grated drain inlets also did not impede maximum design flow, and effectively filtered up to 65 gpm.

The filter medium will absorb approximately 1.9 gallons of liquid contaminant per cubic foot of absorbent: a typical 2 foot by 2 foot filter containing 0.56 ft³ of medium will absorb approximately 8 quarts of liquid contaminants. Hydrocarbons are

the target pollutant at present, but the manufacturer is developing a filter for metals removal.

The life of a filter pack is based on the quantity of contaminants collected. The filter material will absorb up to 4 times its weight (again, a 2 foot by 2 foot) filter would absorb up to 8 quarts of contaminants). Periodic visual inspections should be conducted; it is recommended that each installation be checked prior to the rainy season or during routine maintenance operations. Under normal usage, the useful life of a filter pack is estimated to be 6 months. Heavily trafficked parking lots or roadways may require more frequent replacements. Installations can be found in New Hampshire.

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Howland Swale™

The **Howland Swale™** is an alternative detention structure designed to use biological controls to provide flow control and water quality treatment for stormwater runoff. The product works in three main stages. In the silt basin, or first stage, the special placement and sizing of stone works to trap and

remove silt from incoming runoff, as well as break the initial velocity of the flow.

In the second stage, a pretreatment marsh containing specialized plants traps and absorb pollutants, increases percolation, and enhances water entrapment.

The final stage is a vegetated storage chamber which provides necessary flood

storage volume adjustments for runoff control. A "Vegetated Take-off Channel" is used in lieu of the more traditional riprap discharge point.

The **Howland Swale™** is appropriate for all types of commercial and residential development or runoff situations. The swale provides pollutant removal for silts and other contaminants, and the overall ease of mainte-

* Disclaimer: EPA has not examined any technology and does not endorse or recommend any product offered for sale by companies featured in this publication. Furthermore, EPA has not confirmed the accuracy or legal adequacy of any disclosures, product performance or other information provided by the companies and used by EPA in production of this publication.

nance is greater than for traditional detention basins. No pretreatment is required, because it is built into the unit.

Howland Swale™ installations are custom-designed and costs depend on site conditions and are individually quoted. Actual construction costs, which include materials and plantings, but do not include pre-construction design work, are approximately \$10 per linear foot. Approximately 350 installations can be found in Southern New England. Information on BioFence and Catch Basin Guard is also available from Environmental Research Corps.

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The Cultec Contactor™ and Recharger™

The **Cultec Contactor™** and **Recharger™** plastic leaching chambers are alternative systems for subsurface on-site wastewater and stormwater management. They are designed as a replacement for conventional pipe and stone systems and retention ponds. Design consists of a standard 4" to 24" feed pipe inserted into the chamber end wall. Stormwater or effluent exits through both the 3/4" holes along the side of the chamber and through the open bottom of the chamber. It is then absorbed onto the filter fabric covering and is leached into the surrounding backfill or directly absorbed into the soil or broken stone base. Chambers can be placed in either trench or bed configurations by utilizing the patented interlocking rib connection.

The leaching chambers can be used in residential and commercial applications. Five model sizes accommodate a

range of site constraints or needs. No pretreatment is required, although a Stormfilter™, in-line filtration unit for stormwater management, is also available. Volumes of 75 to 416 gallons per chamber are treatable, depending upon the unit selected.

Contactor™ and **Recharger™** chambers require no maintenance. They are made of a high density, high molecular weight polyethylene plastic that is resistant or inert to all chemicals normally found in stormwater. There are numerous installations throughout the United States, Canada, Mexico, and overseas.

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Rainy Day (continued from page 1)

that clearly targets the audience most critical to addressing nonpoint source water pollution municipal decision makers. The goal is to educate professional and volunteer municipal officials about the impacts of land use on water quality and about the options available for managing their impacts.

What sets NEMO apart from many other nonpoint source educational programs is their emphasis on prevention instead of treatment. Staff help towns understand how to minimize water quality problems through good land use planning and site plan review. They turn to stormwater treatment technologies only after discussing the merits and cost-effectiveness of prevention.

The heart of the NEMO project is an educational presentation that relies heavily on the information-rich imagery of geographic information system (GIS) technology. NEMO uses GIS images of a town's water resources, watersheds, land use/land cover, and zoning to highlight the connections between land use and water quality, and to perform a "build-out" analysis that predicts possible water quality consequences of future development. Throughout, NEMO emphasizes the role of paved areas, or impervious surfaces, as an indicator of urbanization, and thus the potential for nonpoint source water quality impairment.

Although the project's innovative use of GIS is integral to the program, the team has retained its focus on education rather than technology. As a result, the package is usable and effective for municipal officials. National interest in NEMO is growing, and more than a dozen states are beginning to adopt the approach and to adapt the materials developed by the University of Connecticut team. For further information, visit their page on the World Wide Web at <http://www.lib.uconn.edu/CANR/ces/nemo1.html>, or call Chester Arnold at 860-345-4511.

About CEIT (continued from page 1)

the competitiveness of regionally-based envirotech companies, won us one of Vice President Gore's prestigious Hammer Awards. The Hammer Award is presented to teams of federal employees who have made significant contributions in support of reinventing government principles. For more information on CEIT services and events, please contact Jim Cabot, Carol Kilbride, or JoAnn Vizziello at (800) 575-CEIT.

Visit CEIT's website at: <http://www.epa.gov/region01/steward/ceit>

State	Nonpoint	Source	Coordinators
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SAVE THE DATE

**Upcoming Stormwater
Treatment Technologies
Tradeshows**

• **Monday, Nov. 17**
Hartford, CT

• **Wednesday, Nov. 19**
Portland, ME

**For more information
call 1-800-575-CEIT**

*Stormwater Treatment Technologies
(continued from page 1)*

quality match pre-development rates. Local officials are concerned with protecting coastal and inland waters, water supplies, and shellfish beds from stormwater-carried contaminants. In response, public works directors are upgrading municipal drainage systems to provide better water quality and quantity management. In addition, some states have released new guidelines and performance standards for stormwater management, reinforcing the need for useful tools and practicable solutions.

Seeing the great demand for informa-

tion on new stormwater technologies, EPA's Center for Environmental Industry and Technology (CEIT) has joined forces with the NRCS and others in the effort to sponsor additional trade shows. The first took place on April 24th, in Plymouth, MA, and was a huge success. Shows in CT and ME are now being planned for November 1997.

Vendors selected to make presentations at our events represent a comprehensive collection of companies that manufacture innovative, small-scale treatment units that provide long-term water quality treatment for stormwater runoff. Manufacturers of automated samplers and performance

tracking devices for these systems are also invited to present. Additional vendors chosen to exhibit only, include suppliers of more generalized stormwater and erosion control products and services that support stormwater installations.

A good-faith effort has been made to ensure a diverse and comprehensive participant list. If you are aware of any companies or products that would compliment upcoming shows, or if you would like more information on upcoming events, contact Carol Hansen of NRCS at (508) 295-1481, or JoAnn Vizziello at EPA's CEIT at (617) 565-3261.



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